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10/673,131

09/30/2003

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7055 7590 06/30/2008  
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EXAMINER

GOON, SCARLETT Y

ART UNIT

PAPER NUMBER

1623

NOTIFICATION DATE

DELIVERY MODE

06/30/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/673,131 | <b>Applicant(s)</b><br>MANABE ET AL. |  |
|                              | <b>Examiner</b><br>SCARLETT GOON     | <b>Art Unit</b><br>4131              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3 and 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>19 February 2008</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This application claims priority to Japan foreign application 2002-312131 filed on 28 October 2002. A certified copy of the foreign priority document in Japanese has been received. No English translation has been received.

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 19 February 2008 has been entered.

This Office Action is in response to Applicants' Amendment and Remarks/Arguments, filed on 19 February 2008, in which claims 3 and 8 were amended to change the scope and breadth of the claim and claims 1-2 and 4-7 were canceled.

### ***Information Disclosure Statement***

The information disclosure statement (IDS) dated 19 February 2008 complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. Accordingly, it has been placed in the application file and the information therein has been considered as to the merits.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over published research article by Ito *et al.*, published research article by Attardi *et al.* and .US Patent No. 5,384,221 to Savant *et al.* (herein referred to as the '221 patent).

Ito *et al.* teaches a tag-reporter strategy for monitoring the critical steps in polymer-supported oligosaccharide synthesis, namely chain elongation and chemoselective deprotection (p. 3078, paragraph 2 of section entitled "Tag-Reporter Strategy"). Using a modified color test reported by Riguera, Ito *et al.* developed a test wherein the presence (or absence) of a chloroacetyl protecting group (CAc) can be detected by p-nitrobenzylpyridine (PNBP) treatment with piperidine (p. 3078, column 2, second full paragraph; p. 3078, scheme 2). The reaction of CAc with PNBP/piperidine results in a strongly colored zwitterionic salt (p. 3078, scheme 2; p. 3078, column 2, last paragraph). As shown in scheme 3 (p. 3079), a sample experiment is carried out wherein the progress of the chain elongation reaction was monitored by MALDI-TOF MS and removal of the CAc protecting group was monitored by a TLC color test using PNBP/piperidine (p. 3079, columns 1 and 2). Ito *et al.* does not teach a method wherein the progress of the chain elongation reaction is monitored by reacting the sugar with N-[2-[(4,6-dichloro-1,3,5-triazin-2-yl)oxy]ethyl]-N-ethyl-4-[(4-nitrophenyl)azo]-benzeneamine.

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Attardi *et al.* teaches a sensitive visual test for detecting hydroxyl groups on resin. 2,4,6-Trichloro-[1,3,5]-triazine (TCT) reacts selectively at one position with alcohols and the resulting 2-alkoxy-4,6-dichloro-[1,3,5]-triazine is still able to react rapidly with a carboxylic acid at another position. Thus, Attardi *et al.* thought that TCT would be an ideal linker to anchor a colored molecule to a hydroxyl group present on a resin (p. 7395, paragraph 3). The colored dye molecule that was chosen for attachment to TCT was Alizarin R (AliR) or Fluorescein, which results in a red or yellow-green color, respectively, in the presence of a hydroxyl group (p. 7396, last paragraph and scheme 2). Attardi *et al.* also teaches that different dyes or fluorescent molecules may also be loaded (p. 7398, fourth full paragraph).

The '221 patent teaches a birefringent composite AZO dye polymer and its application to erasable optical storage medium. A list of AZO dyes with various functional groups, such as the hydroxyl groups on Disperse Red 1 (column 10), Mordant Blue 9 (column 10), and Acid Alizarin Violet N (column 15) and the carboxylic acid groups on Methyl Red (column 10) and Mordant Orange 10 (column 17) are shown in columns 10-17.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Ito *et al.*, concerning a test for the detection of the presence (or absence) of a chloroacetyl protecting group (CAc) by reaction with PNBp/piperidine, with the teachings of Attardi *et al.*, regarding a sensitive visual test for detecting hydroxyl groups on resin using a colored dye attached to TCT, with the teachings of the '221 patent, regarding a variety of AZO dyes available with varying

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functional groups. One would have been motivated to combine the teachings in order to receive the expected benefit, as suggested by Ito *et al.*, that monitoring of the critical steps of chain elongation and chemoselective deprotection in polymer-supported oligosaccharide synthesis is critical. Therefore, it would have been *prima facie* obvious for one of ordinary skill in the art to combine the available methods for detecting the progress of a chain elongation reaction with that for detecting the removal of a protecting group. One of ordinary skill in the art would be aware of the different methods available for monitoring the progress of a reaction, such as MALDI-TOF MS as described by Ito *et al.* or colorimetric detection using AliR linked to TCT as described by Attardi *et al.*, and would thus be able to choose the technique most suitable for their purposes. Moreover, as discussed by Attardi *et al.*, the choice of dyes is not limited to AliR or Fluorescein, but can include any available dyes or fluorescent molecules, such as those described in the '221 patent. Therefore, one of ordinary skill in the art would know which dyes can be attached to TCT, and thus can be used for detecting hydroxyl groups on a resin.

Absent of any evidence to the contrary, and based upon the teachings of the prior art, there would have been a reasonable expectation of success in monitoring the progress of a chain elongation reaction and detecting the presence of a hydroxyl group using PBNP and N-[2-[(4,6-dichloro-1,3,5-triazin-2-yl)oxy]ethyl]-N-ethyl-4-[(4-nitrophenyl)azo]-benzeneamine.

***Conclusion***

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCARLETT GOON whose telephone number is 571-270-5241. The examiner can normally be reached on Mon - Thu 7:00 am - 4 pm and every other Fri 7:00 am - 12 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisors, Cecilia Tsang can be reached on 571-272-0562 and Janet Andres can be reached on 571-272-0867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cecilia Tsang/  
Supervisory Patent Examiner, Art Unit 4131

/SCARLETT GOON/  
Examiner  
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